AZPDES

Municipal Stormwater Permit
AZS000001-2010

First Annual Report
September 2012

Prepared By:

The City of Tucson
Department of Transportation
Stormwater Management Section

In Co-operation with:

CENTRAL SAFETY SERVICES
GENERAL SERVICES
ENVIRONMENTAL SERVICES
FIRE
HOUSEHOLD HAZARDOUS WASTE
PARKS AND RECREATION
PLANNING AND DEVELOPMENT SERVICES
TUCSON WATER
TRANSPORTATION, ENGINEERING DIVISION
TRANSPORTATION, STREETS AND TRAFFIC MAINTENANCE DIVISION
PIMA ASSOCIATION OF GOVERNMENTS
TUCSON CLEAN AND BEAUTIFUL

The City of Tucson's
Stormwater Annual Report
(Fiscal Year 2011–12)

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Annual Report Form
For Phase I MS4s –Due September 30th Each Year

PART 1: GENERAL INFORMATION

A. Name of Permittee: City of Tucson

B. Permit Number: AZS000001-2010

C. Reporting Period: July 1, 2011 - June 30, 2012

D. Name of Stormwater Mgt. Program Contact: Beverley Hester, Environmental Engineer

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City: Tucson Zip: 85726-7210 Phone: (520) 837-4935

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E. Name of Certifying Official: Daryl Cole

Title: Director of Transportation

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City: Tucson Zip: 85726-7210 Phone: (520) 837-6692

Fax Number: (520) 791-4238 Email Address: Daryl.Cole@tucsonaz.gov

PART 2: ANNUAL REPORT CERTIFICATION

The Annual Report Form must be signed and certified by either a principal executive officer or ranking elected official; or by a "duly authorized representative" of that person in accordance with Sections 9.2 and 9.12 of the permit.

I certify under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature of Certifying Official

9/24/12

Date

PART 3: SUMMARY OF STORMWATER MANAGEMENT ACTIVITIES

Overview

The City of Tucson was covered under Municipal NPDES Stormwater Permit AZS000001 from March 19, 1997 to August 31, 2011. During that time period, the City developed several programs to improve stormwater quality and maintain compliance with this permit. In the last few years, there have been extensive budget restraints, and the stormwater program has been reduced dramatically. However, the Stormwater Management Section is still effective at managing and maintaining stormwater quality.

On September 1, 2011, ADEQ issued the City of Tucson AZPDES Stormwater Permit AZS000001-2010. This is the first reporting year of its five-year term. The permit is significantly different than the previous permit, with new requirements that have been and will be challenging to meet. In the first year, a number of new deliverables were required, including but not limited to: develop and submit to ADEQ a Stormwater Management Plan, collect samples of stormwater flowing into Lakeside Lake, calculate the pollutant load into the lake, identify and map outfalls upstream of Lakeside Lake, develop Stormwater Sampling Procedures, develop a Quality Assurance Manual, develop Standard Operating Procedures for field analyses, develop Industrial Facility Inspection Standard Operating Procedures, develop Construction Site Inspection Standard Operating Procedures, develop Stormwater Awareness Training, and develop Site Specific Spill Plans.

The City has completed the first year requirements. However, it is recognized the breadth of information encompassed in this short period of time will take longer to digest, fully understand and perfect. Therefore, all the deliverables, including annual reports, will be reviewed and improved as the stormwater team becomes more proficient at understanding the new AZPDES Stormwater Permit requirements.

I. Public Education and Outreach

A. REPORT OUTREACH EVENTS AND TOPICS

This section identifies the City departments involved in public outreach activities that enhance public awareness and understanding of stormwater pollution. In addition to City departments, regional assistance is provided by Pima Association of Governments (PAG) and Tucson Clean and Beautiful. Outreach Topics and numbers reached are presented in Table I.A.i., Stormwater Public Awareness Program Activities.

1. Stormwater Management Section

The Stormwater Management Section's Stormwater Public Awareness Program encourages the public to keep stormwater clean and report stormwater concerns. The program extends to messages about flood safety in addition to promoting the preservation of naturally vegetated washes.

In previous years, the Stormwater Management Section produced the *Water Harvesting Guidance Manual*, making it available on CD, on the City's website, and in hard copy. This guidance manual was designed to assist the development community in complying with Land Use Code requirements to maximize use of water harvesting in new development. Water Harvesting is a low-impact development Best Management Practice (BMP) that

promotes infiltration and serves to reduce pollutants in stormwater runoff. In addition, residents with existing homes or businesses can use the *Water Harvesting Guidance Manual* to retrofit their property to harvest stormwater. The *Water Harvesting Guidance Manuals* were distributed to the general public.

In the City's ongoing catch basin identification program, catch basins located where there is a high potential for illegal dumping are identified with a weather-resistant metal disk bearing the slogan, "Only Rain in the Drain." The marked catch basins are included on the City's interactive, GIS Stormwater Map that will be included in a future annual report.

In order to inform citizens about the importance of preserving naturally vegetated watercourses, the City has continued a program to install signs identifying washes by name at significant road crossings. If the public is aware of the location and name of their local washes, citizens may be more likely to protect them as a natural resource. The wash signs get damaged periodically and are replaced. These wash sign locations are included in a layer on the City's GIS Stormwater Map.

In this report period, the Stormwater Management Section distributed outreach materials at: Ward IV Back to School Bash, Launch the Loop, Water Festival, Tucson Children's Earth Day, and Monsoon Safety Awareness Week that were intended to encourage the public to prevent stormwater pollution. The message "Only Rain in the Drain" is used on a variety of promotional give-away materials as listed in Table I.A.i.

The *Desert Wash Safety Activity Book*, which presents basic stormwater quality messages, was provided to younger residents and continues to be popular among elementary schools, recreation centers, libraries and other facilities. These activity books were distributed in both English and Spanish.

In 2007, another book geared toward students in middle school was produced. *Stormwater in the Desert* blends aspects of the *Water Harvesting Guidance Manual* with messages about flood safety and stormwater quality. This middle school activity book introduces students to complex technical concepts and includes interactive activities using the City's website, particularly the MapGuide and Stormwater Management Section websites. During this reporting period, the books were delivered to students and teachers at schools in the Tucson area. The book is keyed to Arizona's educational curriculum guidelines and also includes a Teacher's Guide.

In this report period, Stormwater Management Section continued to distribute construction information packets containing guidance on complying with the AZPDES General Permit for Construction. Topics included are listed in Table I.A.ii.

In addition, in this report period, the Stormwater Management Section continued to distribute information packets and guidance materials to industrial facilities. The Industrial AZPDES Packet includes information on the No Exposure certification process among other topics as shown in Table I.Aii.

2. Planning and Development Services

The Planning and Development Services Department serves as the one stop permitting facility for the private construction and development community in Tucson. Outreach is conducted through daily interactions with counter staff, handout materials and monthly meetings with contractors and developers. Post-construction maintenance of retention/detention basins was encouraged through direct mailings and inspections. Table I.A.iii., includes outreach topics and numbers reached.

3. Tucson Water

Tucson Water engages in a wide variety of educational outreach activities intended to increase awareness and encourage citizen action in water-related areas. The training and workshops reported in Table I.A.iv., focused on water harvesting techniques to improve stormwater quality.

4. Pima Association of Governments

Pima Association of Governments (PAG) Stormwater Working Group was established in an effort to help jurisdictions coordinate stormwater permit requirements and provide a forum to discuss stormwater regulations and rules. PAG orchestrates an annual multi-media outreach campaign. This year's media campaign was strongly emphasized through the summer monsoon season, but also included some features now available year-round.

This year, the awareness was focused on *e.coli* with "Scoop the Poop" campaigns.

The slogan, "Clean Water Starts with Me," was used for the fourth consecutive year to increase familiarity with the successful message that has been cited by other entities across the state. An updated series of artwork was created to accompany the slogan on promotional materials and to match the imagery used by the local jurisdictions in school programs and the "Only Rain in the Drain" efforts.

Pima Association of Governments also provided stormwater pollution prevention outreach to the construction industry and businesses through meetings with the Southern Arizona Homebuilders Association and through their internet site www.PAGstorm.com/construction.

Table I.A.v., illustrates the many topics and multiple media used by PAG in this report period to raise awareness of stormwater issues.

5. University of Arizona, Cooperative Extension Service

The University of Arizona's Cooperative Extension Services provides training on the proper storage, use, and disposal of pesticides, herbicides, and fertilizers to the general public, and landscape professionals. The number of people who received training is tabulated in Table I.A.vi.

Table I.A.i

City of Tucson-Department of Transportation		
Target Group	**Outreach Materials**	**Number**
General Public	• Water Harvesting Guidance Manual	50
	• Catch basins marked "Only Rain in the Drain"	1,863
	• Wash identification signs	586
	• Swimming Pool Discharge Flyer	10
	• Yard and Landscape Waste Disposal brochure	25
	• Leaky vehicle flyer	25
	• Promotional materials given away at Public Outreach Events o August 6 – Ward IV Back to School Bash o October 22 – Launch the Loop o February 10 – Water Festival o April 21 – Tucson Children's Earth Day o June 14 – Monsoon Safety Awareness Week	3,100
Elementary Schools	• *Desert Wash Safety Activity Book* for grade school children o Stormwater runoff issues and residential stormwater management practices o Illicit discharges and illegal dumping	1,735
Middle Schools	• *Stormwater in the Desert* book for middle school children and interactive website o Stormwater runoff issues and residential stormwater management practices o Potential water quality impacts of application of pesticides, herbicides and fertilizer o Potential impacts of animal waste on water quality o Illicit discharges and illegal dumping o Spill prevention, proper handling and disposal of toxic and hazardous materials o Proper management and disposal of used oil	819

Table I.A.ii

City of Tucson-Department of Transportation		
Target Group	**Outreach Materials**	**Number**
Construction Site Operators, Development Community	• Construction information packets o Planning ordinances and grading and drainage design standards for stormwater management in new developments and significant redevelopments o Municipal stormwater requirements and stormwater management practices for construction sites o Illicit discharges and proper management of non-stormwater discharges o Spill prevention, proper handling of toxic and hazardous materials, and measures to contain and minimize discharges to the storm sewer system o Proper management and disposal of used oil and other hazardous or toxic materials, including practices to minimize exposure of materials/wastes to rainfall and minimize contamination of stormwater runoff o Stormwater management practices, pollution prevention plans, and facility maintenance procedures	4
Industrial Commercial Businesses	• Industrial Information packets o Illicit discharges and proper management of non-stormwater discharges o Spill prevention, proper handling of toxic and hazardous materials, and measures to contain and minimize discharges to the storm sewer system o Proper management and disposal of used oil and other hazardous or toxic materials, including practices to minimize exposure of materials/wastes to rainfall and minimize contamination of stormwater runoff o Stormwater management practices, pollution prevention plans, and facility maintenance procedures	19
	Subtotal Reached:	8,236
	Cost:	$6,620

Table I.A.iii.

City of Tucson -Planning and Development Services		
Target Group:	**Development Construction**	
	Outreach Materials	**Number**
• 12 Monthly Outreach meetings, approximately 15 attendees		
	Subtotal Reached:	15
	Cost:	$1,200

Table I.A.iv.

City of Tucson -Water		
Target Group:	**General Public**	
	Outreach Materials	**Number**
• Rainwater Harvesting Manuals (several hundred distributed)		~750
• Rainwater Harvesting Rebate (flyer in water bill)		230,000
Target Group:	**General Public**	
	Outreach Materials	
• 58 "Water-Wise Landscaping" Workshops		1,100
	Subtotal Reached:	231,850
	Cost:	$4,700,000

Table I.A.v.

Pima Association of Governments		
Target Group:	**Construction Industry**	
	Outreach Materials	**Number**
• Monthly meetings with the Southern Arizona Homebuilders Association		15
• PAG Stormwater website hits		600,000
o Erosivity Calculator		
o Example SWPPPs		
o Inspection Checklists		
o Local Contacts		
o Links to City's Stormwater Ordinance		
Target Group:	**General Public**	
	Outreach Materials	
• Dog Poop stickers		900
• Public Service Announcements (PSA's)		923,000
• Billboards		43,000
• Magazine Ads		750,000
• Movie Theater		12,000
• Brochures		850
• Bus Shelters/Bus Interior Posters (250 posters, 1 per bus, 45,000 people/day)		45,000
• Webpages and Social Media		600,000
• Displays at Events		1,000
	Subtotal Reached:	2,975,765
	Cost:	$18,796

Table I.A.vi.

University of Arizona, Cooperative Extension Service		
Target Group:	**General Public**	
	Outreach Materials	**Number**
• Proper use of fertilizer, insecticides, herbicides, and other pesticides		391
• Integrated Pesticide Management (IPM)		3,000
	Subtotal Reached:	3,391
	Costs:	$20,450

6. Table I.A.vii Summary of Public Education and Outreach

Table	Jurisdiction	Reached	Costs
I.A.i/ii	City of Tucson –Transportation Department	8,236	$6,620
I.A.iii	City of Tucson –Planning and Development Services Department	15	$1,200
I.A.iv	City of Tucson –Water Department	231,850	$4,700,000
I.A.v	Pima Association of Governments	2,975,765	$18,796
I.A.vi	University of Arizona –Cooperative Extension Service	3,391	$20,450
	TOTALS:	3,219,257	$4,794,132

II. Stormwater Public Involvement Program

A. ACTIVITIES, NUMBER OF PEOPLE

1. Stormwater Management Section

The City of Tucson Stormwater Management Section website contains a contact page allowing citizens to "Report a Concern," including spills that threaten to enter the stormdrain system, dry weather flows, construction or industrial site runoff, and illegal dumping in stormdrains or washes. The City website received hits that are listed in Table II.A.i.

2. Household Hazardous Waste

The City of Tucson provides year round household hazardous waste (HHW) disposal services through a central dedicated hazardous waste facility and five Antifreeze, Batteries, Oil and Paint (ABOP) drop-off sites. During this reporting period, the Household Hazardous Waste Collection program distributed outreach materials to the General Public through direct mailings, handouts at public events, and facilities on topics listed in Table II.A.ii. In addition, the program provided information to businesses through their Small Business Waste Assistance Program. Educational materials provided to the public included a brochure describing the collection site locations, hours of operations, and tips on how to reduce environmental impacts.

Public participation in the City's Household Hazardous Waste Collection Program was encouraged through a variety of outreach materials advertising this service including a product-specific brochure entitled, "Household Hazardous Waste, How to Handle Pesticides." People participated in the program by dropping off household hazardous waste. This and the operating costs for this reporting period are listed in Table II.A.ii.

3. Tucson Clean & Beautiful

Tucson Clean and Beautiful is a nonprofit environmental organization funded in part by the City of Tucson, Pima County, private and corporate grants, and community membership donations. Through the Adopt a Park and Public Areas program, over 225 public areas in the Tucson area have been officially adopted by community volunteer groups, including schools, neighborhood and civic associations, government, religious organizations,` and businesses. These groups make an ongoing volunteer commitment to clean up litter and provide assistance in monitoring and reporting maintenance concerns at their adopted area. Volunteer removal of litter and illegally dumped material from public areas helps to reduce impacts to stormwater quality.

Trees for Tucson is a grassroots urban forestry program that advocates planting desert-adapted, low-water-use trees in order to increase shade tree cover that acts to decrease the volume of direct stormwater runoff. Shade trees also help trap pollutants to improve water quality, stabilize soil and prevent soil erosion.

Tucson Clean and Beautiful procures a periodic email newsletter and hosts a website. These online resources complement information shared by phone, in person and in brochure format, highlighting local environmental education events and community volunteer opportunities. These programs, as well as the central message of Tucson Clean and Beautiful, encourage the public to act responsibly in ways that improve and promote stormwater quality. Table II.A .iii, below provides an overview of the scope and audience of their program.

Table II.A.i.

Stormwater Management Section		
Target Group:	**General Public**	
	Outreach Materials	**Number**
• Stormwater Section website "Report a Concern" web hits		1,227
	Subtotal Reached:	1,227

Table II.A.ii.

Household Hazardous Waste (HHW)	
Target Group: General Public	
Outreach Materials	**Number**
• Brochures on properly disposing of auto fluids, batteries, paints, and solvents, pool chemicals, and pesticides	300
• HHW webpage visits	39,414
Target Group: General Public	
Outreach Materials	
• Household Hazardous Waste Collection Program	33,648
o Participants in the program	
• ABOP drop-off sites	18,845
o Participants in the program	
Target Group: Small Businesses	
Outreach Materials	
• Small Business Waste Assistance Program	121
o Participants in the program	
Subtotal Participants:	52,614
Subtotal Program Cost:	$731,946

Table II.A.iii.

Tucson Clean and Beautiful	
Target Group: General Public	
Outreach Materials	**Number**
• Newsletter	3,500
• Website	40,000
• Presentations given	169
• Packets mailed to potential volunteer groups	50
Target Group: General Public	
Outreach Materials	**Number**
• Adopt a Park and Public Areas, including Streets and Washes	4,937
o Participants in the program	
• Trees for Tucson Program	1,328
o Households Receiving Trees – Reduces soil erosion, improves stormwater quality	
Subtotal Participants:	49,984
Subtotal Program Cost:	$138,420

4. Table II.A.iv Summary of Public Involvement

Table	Jurisdiction	Reached	Costs
II.A.i	City of Tucson –Transportation Department-Stormwater	1,200	0
II.A.ii	City of Tucson –Household Hazardous Waste	52,614	$731,946
II.A.iii	Tucson Clean and Beautiful	49,984	$138,420
	TOTALS:	103,798	$870,366

III. Illicit Discharge Detection and Elimination (IDDE) Program

A. Municipal Employee Training

1. New and Current Employees

New City employees received training from Central Safety Services on topics including: spill prevention and response, proper storage, handling and disposal of used oil and other toxics, reporting spills, reporting spills that threaten the stormdrain system, and reporting suspicious non-storm flows. This training was provided at orientation in the "City of Tucson Employee Safety Handbook." Existing City employees attended training through the City Learn, which allows staff to take training individually. Therefore, no dates are reported. The specialized 40 hour Hazardous Waste Operations and Emergency Response (HAZWOPER) was provided to fire personnel. The 8-hr HAZWOPER refresher training is taken annually by stormwater and environmental services staff. The numbers of employees trained are tabulated in Part 4.

2. Specialized Stormwater Training

The stormwater team participates in weekly training/discussion sessions. The focus varies on all activities related to the stormwater program. These activities include complaints, sanitary sewer overflows, illicit discharges, sampling activities, sample results and action needed, field screen outfall investigations, MAITs inspection, industrial inspections, etc.

B. Spill Prevention and Response

1. Municipal Facility Assessments

During Fiscal Years 2012-13, the Stormwater Management Section will assess City owned and operated facilities for the presence of materials which have the potential to impact stormwater quality, and will prioritize these facilities based on the risk of these impacts. The City utilizes a Multi-Agency Inspection Team (MAITs) to perform annual inspections of all City owned and operated facilities. The team consists of representatives from City agencies with expertise in Industrial Hygiene, Occupational Safety and Health Administration (OSHA) Compliance, Risk Management, Fire Code, and Stormwater. Facility assessments will be conducted in conjunction with the MAITs Inspections, and will be focused on determining the potential for each facility to impact stormwater quality.

2. Identification of Higher Risk Facilities

The City will review and prioritize the list of municipal facilities annually, and will begin inspecting the "higher risk" facilities every two years, beginning in FY 2013-2014 (year three of the permit term), and will report on any issues found which required follow-up. New practices are currently in practice to minimize stormwater exposure from issues discovered.

3. Site Specific Spill Plans

The City of Tucson has implemented a Citywide Hazardous Substance/Spill Response Policy which defines spill responsibilities for each City agency and includes specific procedures to follow in the event of a spill. Spill procedures are readily available at all City facilities where materials subject to spills are stored or used. During Fiscal Years 2012-2013,

the City will add site specific information for City facilites. Once completed, the MAITs Stormwater Inspector will review these site specific spill procedures every two years, in conjunction with High Risk Facility inspections and provide feedback.

4. Spill Tracking

Spills at City owned and operated facilities are recorded in a database at the City's Environmental Services Department. All departments are to inform Environmental Services Department of spills according to the Spill Response Program found on the City's website and the Stormwater Management Plan (SWMP).

C. DRY WEATHER SCREENING OF MAJOR OUTFALLS

1. Outfall Inventory

In the early 1990s, the City of Tucson followed the procedures outlined in 40 CFR 122.26 to identify 500 outfalls which have been subsequently utilized to detect non-storm flows. These outfalls have been mapped on the City's Geographic Information System (GIS) Stormwater Map. A map showing these 500 outfalls will be included in PART 13 (Attachments) by the 4th year report.

2. Outfalls Inspected

In this report period, the Stormwater Management Section conducted dry weather outfall screening inspections of 113 outfalls.

3. Priority Outfalls Identified

During this year the City mapped additional outfalls determined to be an inspection priority for illicit discharge screening to impaired waters. These outfalls identified may impact Lakeside Lake, an impaired water.

4. Priority Outfall Inspected

During this year, ten priority outfalls were identified, inspected, and added to the field screening outfall map. The priority outfalls will be inspected annually. The location of the priority outfalls is upstream from Lakeside Lake in the Atturbury Wash Watershed. There were no dry weather flows found at any of these outfall locations.

5. Results of Dry Weather Screening

Of the 113 outfall inspections conducted, 15 outfalls were referred to the Streets Department for repair of concrete, soil erosion, or removal of excess debris. Information collected during dry weather field screening is recorded and tracked through the Field Screen Outfall Database.

6. Eliminate Illicit Discharges (Cross Connections and Other Sources)

Within City owned parks, there are approximately 32 miles of drainage channel/washes. The City annually inspects key areas of the stormdrain system located outside of City owned parks for the presence of illicit discharges.

7. Reports of Dry Weather Flows

In this report period, the City received 120 reports of dry weather flow and responded to all of them. The reports were received from citizens, City staff, and other agencies. Reports of dry weather flow are considered to be a priority for inspection. Investigations conducted revealed that the source water originated from a variety of sources including: pool draining, pool back flushing, grey water, fire fighting uses, as well as overflows and line break releases from potable water, reclaimed water, and sanitary sewer systems.

Of the discharges reported from sanitary sewer systems 40 originated from private systems and 11 originated from public sanitary sewer overflows. The flows were from cleanouts, manholes, broken pipes, or overflowing grease traps. Three verbal warnings were given and five of the releases entered a wash or stormdrain. Each release was properly cleansed, sanitized.

For other dry weather flows inspected, eight uncharacterized complaints generated seven verbal warnings and one Notice of Violation (NOV) for automotive fluids on the street and sidewalk. Two verbal warnings were issued to commercial sites for excessive runoff entering the Right-of-Way (ROW). Seven verbal warnings were issued for other commercial and residential discharges. A construction company was issued a NOV for dumping in a wash, and verbal warnings were issued for three spills entering washes.

Sixteen verbal warnings were also given for swimming pool discharges onto an unpaved right-of-way. Six of those were also directed to remove the discharge pipe or hose from the alley, and keep future filter back wash water on site.

IV. Municipal Facilities Pollution Prevention/Good Housekeeping Program

A. MUNICIPAL EMPLOYEE TRAINING

1. New and Current Employees

City employees attend mandatory OSHA training during their first year and ongoing employees receive OSHA training every other year through the City's online program entitled "City Learn." The numbers of employees trained are tabulated in Part 4. Because classes are taken individually, no dates can be reported for the majority of employees. For those employees who do not have access to a computer, the City Learn training is conducted in a class setting. Current OSHA training for City of Tucson employees includes the following key subject areas:

- Spill Training: topics covered include prevention, response, and practices to prevent or minimize spills or discharges to the City's stormdrain system.

- Proper Handling, storage, transport and disposal of used oil and other toxics and hazardous materials and wastes to prevent spills, exposure to rainfall, and contamination of stormwater runoff.

More extensive training on these subjects is provided for first responders and staff who routinely work with hazardous or toxic products. New employees receive the preliminary

40 hours HAZWOPER training, and existing employees receive the HAZWOPER refresher classes.

Additionally, a training session occurred on August 10, 2011, at the Thomas O. Price center where 15 employees attended. This training emphasized activities specific to the Thomas O. Price service center, the SWPPP, outflow locations, and BMP's.

2. Specialized Stormwater Training

Stormwater Management Section staff receive extensive training during their first year of employment and refresher training every other year. New Stormwater employees each receive a copy of the Stormwater Ordinance (SWORD), the Stormwater Management Plan (SWMP), the Watercourse Maintenance Guidelines, and any applicable ordinances and regulations.

The Stormwater Management Section employees (four) received training at the 2012 Seminar "Stormwater Regulations for the Construction Industry" hosted by Pima Association of Governments on March 20, 2012. Two stormwater inspectors participated in online training with the Stormwater Virtual Expo on March 21, 2012. The topics of the stormwater Virtual Expo training included. BMP maintenance and NPDES MS4 Permits. Three employees of the stormwater team participated in the Green Infrastructure LID Conference held from March 27-29, 2012. The conference provided awareness training of Low Impact Development. Additionally, two employees from the Stormwater Management Section attended a 6-hour continuing education course for the State of Arizona General Pesticide Applicators License on April 25, 2012 and the 8-hour Hazardous Communications Refresher (HAZCOM) on May 30, 2012.

Construction site training was conducted on December 2, 2011 at the 8th Street Downtown Links Project. The training focused on proper BMP installation, inlet protection, track-out identification, and resolution. Additionally, the Stormwater Management Section conducts and attends weekly training that focused on the following:

- Stormwater enforcement protocol and compliance
- Incident reporting requirements (24-hour ADEQ report form)
- Stormwater Management Section Compliance Protocol
- Impaired waters and sampling stormwater flow entering Lakeside Lake
- City of Tucson Stormwater Management Plan deliverables and requirements.

On-going training for Planning and Development Services Department Stormwater staff includes frequent review and discussion of City Ordinances, development standards, and stormwater regulations. New staff are trained by existing staff in a mentoring process. In this report period, three staff members received training at the 2012 Seminar "Stormwater Regulations for the Construction Industry" hosted by Pima Association of Governments on March 20, 2012.

B. MUNICIPAL FACILITY ASSESSMENTS

1. Municipal Facility Inventory

To date, the City has identified 203 City owned and operated facilities. During fiscal years 2012-13, the following information will be added to the inventory: latitude/longitude, facility contact, the operational status (operating or closed), the Standard Industrial Classification (SIC) code(s) which best reflects the services provided by each facility and a brief description of operational practices that could potentially impact stormwater quality. The City will investigate adding information from the inventory to the GIS Stormwater Map.

2. Higher Risk Facilities

(a) MAITs Inspections

The stormwater inspector assigned to the MAITs inspection team will collect information to assess the potential of City owned and operated facilities to impact stormwater quality during FY 2012-13 and the City will prioritize municipally owned facilities based on the following criteria:

- Requirement for MSGP
- Proximity to Lakeside Lake, an impaired water,
- Potential for impacting stormwater quality based on:
    - Quantity and location of materials used and/or stored at the facility;
    - Potential for exposure to stormwater; and
    - Potential to discharge a substantial pollutant load to the MS4 or to a water of the U.S.

Three City facilities were considered higher risk during this reporting period. These were: Thomas O. Price Service Center, Los Reales Landfill, and Fred Enke Golf Course.

(b) Proper Management of Used Oils and Toxics

The Tucson Fire Department manages the City of Tucson Hazardous Waste Disposal Program, a citywide program to ensure proper handling and disposal of all toxic wastes generated by City operations. The General Services Department has an automotive fluids handling procedure to contain fluids in designated storage areas.

(c) Controls for Pesticides, Herbicides, and Fertilizers

Responsibility for proper storage and application of pesticides, herbicides, and fertilizers at City owned facilities is shared by two City Departments, City of Tucson Parks and Recreation Department, and the City of Tucson Department of Transportation, Streets and Traffic Maintenance Division. Proper storage practices in terms of stormwater BMPs are verified during annual Multi-Agency Inspection Team (MAITs) inspections. Separate costs for implementation of these controls were not available at the time of this report.

C. INSPECTIONS

1. Prioritizing Areas of MS4 for Inspection

The City of Tucson, Department of Transportation, Streets and Traffic Maintenance Division shares responsibility for inspection and maintenance of the City's MS4 Drainage System with the City Parks and Recreation Department. The drainage channels/washes located within City owned parks are considered priority and are inspected a minimum of once a year. Based on system history, citizen complaints, and known maintenance concerns, the City annually inspects key areas of the stormdrain system located outside of City owned parks for the presence of illicit discharges, excess sediment, litter, debris or other pollutants that may obstruct flow or be transported in stormwater. In this report period, the City considered 218 miles of the MS4 outside of City owned parks as priority and these 218 miles were inspected. In addition, Stormwater Inspectors performed inspections on 29 miles of the City's MS4. A total of 279 miles of the City's MS4 were inspected in this report period.

2. Municipal Facility Assessments

The City's Multi-Agency Inspection Team (MAITs) conducts annual inspections of all City owned and operated facilities, and in this report period, MAITs inspected 203 of these facilities. As required, follow-up inspections were made to verify that corrections had been made. During FY 2012-13, the Stormwater Inspector assigned to MAITs will perform assessments of City facilities to determine if five or more gallons of potential stormwater pollutants are stored in areas exposed to stormwater. Based on this assessment, and on the types of activities performed, material stored, and proximity to receiving waters, the City will determine which of these facilities will be considered high risk.

The City of Tucson Environmental Services owns and maintains 15 closed landfills and 1 active landfill - Los Reales. Los Reales Landfill operates under the MSGP 2010 and was issued authorization number AZMSG-61695 on May 31st, 2011. The Los Reales Landfill Stormwater Pollution Prevention Plan (SWPPP) was written in accordance with the MSGP 2010. Annually, the City of Tucson Department of Transportation Stormwater Management Section inspects both open and closed landfills for stormwater regulatory compliance. On June 13, 2012, the City conducted an inspection of Los Reales Landfill. This inspection is an additional measure to ensure that pollutants from landfills and municipal waste facilities are controlled. No violations or concerns were noted during the inspection of Los Reales Landfill. The Los Reales Landfill is maintained in good operating condition.

On June 14, 2012, the Stormwater Management Section inspected the 15 closed landfills. No deficiencies were noted at the inspections. The closed landfills are being maintained in good condition. The City has approved funding for a permanent cap for the Tumamoc Landfill. At the time of inspection, the status of the plans for the cap were at 30% of completion.

The City's fleet maintenance facility, Thomas O. Price Service Center, is not regulated under an MSGP however, it is covered under the City's MS4 permit. The Thomas O. Price Service Center maintains a SWPPP and has a Stormwater Pollution Prevention Team that conducts quarterly stormwater inspections of the facility. The Stormwater Management Section conducts annual inspections of the Service Center. The facility was inspected on June 22, 2012 and no violations were found other than minor improvements in good housekeeping. These were addressed at the time of inspection.

3. MSGP Facilities

To date, the only city owned and operated facility that qualifies for coverage under the Multi-Sector General Permit is Los Reales Landfill. Los Reales is covered under authorization number AZMSG-61695; however, as an additional landfill control measure, Los Reales is inspected annually by the Stormwater Management Section.

There are three City of Tucson owned transit facilities, which are privately managed and staffed. They are two Sun Tran Bus Maintenance Facilities and the Sun Van Facility that are operated under separate MSGP 2010 permits. These facilities were inspected on July 19, 2011, and the SWPPP for each facility was reviewed to ensure compliance with the MSGP 2010. All three facilities provided records of annual stormwater training. Only minor housekeeping issues were identified during inspections and were immediately addressed. The MSGP permit numbers for these facilities are listed below.

- Sun Tran Bus Terminal AZMSG-61745
- Sun Tran Bus Terminal Northwest AZMSG-61747
- Sun Van AZMSG-61746

4. Summary of Follow-Ups

Concerns noted in the FY 2011-12 MAITs inspections of municipally owned and operated facilities were at four City facilities. The concerns were for: three locations had spilled granular fertilizer that needed cleaning up, 11 locations needed secondary containment, three showed evidence of draining automotive fluids from unused equipment and subsequently, contaminated soil needed to be removed. Three locations required spill kits, one concrete washout needed cleaning, two stormdrain inlet covers needed replacements, two had oil spills that needed cleaning and secondary containment, nine needed to remove stored hazardous waste, two locations had waste grease storage and containment problems, and three locations had waste oil storage and containment deficiencies. During the City facility inspections, minor adjustments to good housekeeping practices were recommended and usually addressed during the same inspection. All inspections included a representative of the facility to observe any deficiency. Reports were sent to the facility managers or the responsible party that described the deficiencies and the report included instructions to notify the MAITs team, within 30 days of the corrective action, or to provide an abatement schedule. Follow-up inspections were conducted to verify that appropriate actions were taken to resolve concerns.

D. INFRASTRUCTURE MAINTENANCE

1. Stormdrain System

- Miles visually inspected:
  Within City Parks, approximately 32 miles of linear drainage channels/washes were inspected. Outside Parks, City Street and Traffic Maintenance Inspectors inspected 218 miles of drainage channels/washes. Stormwater Inspectors inspected an additional 29 miles of stormdrain /washes. In total, approximately 279 linear miles of the City's MS4 were inspected.

- Miles Cleaned or Debris Removed:
  In this report period, approximately 218 miles of drainage channel outside City parks and about 32 miles of drainage channels within City parks were cleaned.

- Cleaning of Closed Conduit:
  Contracted vactor services are utilized whenever there is need to clean City-owned closed conduit facilities. During this reporting period, approximately 0.05 linear miles of closed conduit were cleaned within City of Tucson owned Parks.

- Retention/Detention Basins Cleaned:
  Accumulated sediments and debris in retention/detention basins are removed seasonally, or as necessary, contingent on flow. During this reporting period, ten Retention/Detention basins located in City owned Parks were cleaned.

- Number of Catch Basins Identified:
  The City identified 1,000 catch basins.

- Number of Catch Basins Cleaned:
  Nine catch basins within City parks and 43 outside City parks were cleaned.

2. Roadway System

- Street and Parking Lot Sweeping Program:
  The Streets and Traffic Maintenance Division's current schedule for street sweeping for major arterial and collector streets is twice monthly, and sweeping streets in the central business district is three times each week. These priorities are reassessed annually. Street and parking lot sweeping in public parks is conducted through the Parks & Recreation Department.

- Broom Miles:
  The City swept 24,709 broom miles of roadways.

- Street and Lot Sweeping after Public Events:
  Approximately 2,934 broom miles of roadways and parking lots were swept following public events.

- Total Waste Collected:
  The total amount of waste collected from street sweeping was 7,027 tons.

E. Mapping Status

The City's GIS mapping system, is formatted as an Environmental Systems Research Institute (ESRI) Geodatabase feature class North America Datum of 1983 (NAD83) High Accuracy Reference Network (HARN) in State Plane Arizona Central Fips 0202 International Feet. The GIS based Stormwater Map, http://maps.tucsonaz.gov/stormwater currently contains the following information:

- Linear Drainage Structures: Line layer showing the location of stormwater system pipes. The direction of flow can be determined based on the topographic layer.
- Stormdrain Grates and Catch Basins: Point layer showing the locations of stormdrain grates and catch basins.
- Outfalls: Point layer showing the location of all major outfalls (field screen locations); polygon layer showing the drainage area associated with each of the five sampling sites where stormwater is monitored.
- Detention/Retention Basins: Point or polygon layer showing the locations of all identified City-owned retention and detention basins.
- Jurisdictional Boundary: Line or polygon layer showing the jurisdictional boundaries of the MS4, including any new land annexations during the permit term.

During the first four years of this permit, the City will incorporate mapping of additional features identified in the new MS4 permit. Completion of this effort is anticipated by September 30, 2015. In addition, the City will complete a study evaluating the costs, methods and time needed to further develop the City's GIS Stormwater Map. This study will also be completed by September 30, 2015.

V. Industrial Stormwater Program

A. Municipal Employee Training

The Stormwater Management Section hired one new staff member in this report period. New Stormwater Management staff received extensive training during their first year. Stormwater training incorporates both SWPPP review and inspection. An emphasis on cross training allows a fewer number of staff to fill in as needed to meet fluctuations in workload. They receive extensive written materials, including a copy of the Stormwater Management Plan, a copy of the AZPDES Construction General Permit, Multi-Sector General Permits, the Stormwater Ordinance (SWORD), and outreach materials for stormwater management for industrial and commercial facilities. Additional on-site training was performed at the Thomas O. Price center on June 22, 2012, four current and one new employee attended, and three different training sessions occurred during industrial inspection in this year. Three employees attended two and two employees attended one.

B. STATUS OF INVENTORY

1. Industrial Facility Database

The Stormwater Management Section maintains a database of Industrial and Commercial facilities that have the potential to discharge pollutants to the city's storm sewer system. Currently the list includes 258 facilities that are targeted by the Multi-Sector General Permit, and 290 non-targeted facilities which have been inspected during the last MS4 permit term. In this report term, the Stormwater Management Section reviewed the list, added a brief description of the facilities' activities and re-evaluated non-targeted facilities to determine if these pose a significant threat to stormwater quality. The Industrial Facility database currently includes the following facilities:

- Industrial facilities identified in 40 CFR 122.26(d)(2)(iv)(C);
- Industrial facilities subject to MSGP requirements, including those facilities that have submitted for a no exposure exclusion; and
- Other industrial and commercial sources (or categories of sources) which the City has inspected over the last permit term. Part 13: Attachments contains a map of facilities in the City's Industrial Facility Database.

2. Higher Risk Facilities

During this reporting period, the Stormwater Management Section identified 33 higher risk facilities that are more likely to be sources of stormwater pollution. The priority list was re-evaluated and risk assessment was based on the type of facility, the products or services provided by the facility, proximity to receiving waters, receiving water quality, and other factors that indicate the potential to impact water quality.

3. AZPDES Non-filers

The City implemented a program to determine whether or not a facility has obtained coverage under the Arizona Multi-Sector General Permit. When the City identifies a facility that has not obtained the required coverage, the City will report that facility's location and information to the ADEQ Unit Manager, Field Services Unit, Water Quality Compliance Section semi-annually, by June 30 or December 31.

C. INSPECTIONS

1. Inspection Findings

During the facility inspections, recommendations were made to improve control measures to assure permit compliance. There were no enforcement incidents that required court action. All corrective actions were minor and corrected at the time of inspection or if needed were corrected by the time of a scheduled re-inspection. Notable corrections made at inspected facilities included the following:

- Placement of absorbent socks to filter run-off from outdoor storage areas,
- Obtaining required MSGP,
- Moving of 55–gallon drums to areas with overhead protection and secondary containment,
- Improve housekeeping at fueling areas by cleaning spills with absorbents and having spill kits stationed at fueling areas,

- Replace leaking rental generators with new generators,
- Repair dirt perimeter berms to prevent discharges into MS4, and
- Install control measures to prevent discharges into the MS4.

2. Inspect 20% of all Facilities

In this report period, the City changed the inspection report by including more detail including photographs and summaries. This detail ensures the owner and operator clearly understand what recommendations need to be applied. Additionally, the focus was on facilities of higher risk, that take much longer to complete then those of low risk. As a result, the minimum of 20% inspected was not achieved. The City inspected 19 facilities targeted under the MSGP. This total is 8% of all of the MSGP targeted facilities in the Industrial Facility Database. Of the 33 high risk facilities, ten were inspected. During the next report period, the City will be reviewing and revising the facility list, and will ensure that a minimum of 20% of facilities on the database receive inspections.

3. Enhancing the Industrial Facility Program

During the permit term, the Stormwater Management Section will evaluate alternatives for enhancing the industrial commercial stormwater program with the goal of increasing field presence through increased numbers of inspections and increasing interaction with commercial and industrial facilities through outreach or other innovative measures.

During this report period the Stormwater Management Section focused on educating facility operators on the MSGP 2010 and the sector specific requirements for their respective industry. During facility inspections, additional time was dedicated to discuss and explain the MSGP 2010 and sector specific requirements. This was performed to assist facility operators to be in compliance with stormwater regulations. In addition, communication was improved between the facility operators and the City. In the future, this may prevent incidents of non-compliance.

VI. Construction Site Controls

A. Municipal Employee Training

1. New and Existing Employee Training

The Stormwater Management Section hired one new staff members in this report period. New Stormwater Management staff receive extensive training during their first year. Stormwater training incorporates both SWPPP review and inspections. An emphasis on cross training allows a small staff to fill in as needed to meet fluctuations in workload. They receive extensive written materials, such as, a copy of the Stormwater Ordinance (SWORD), the Stormwater Management Plan, the Watercourse Maintenance Guidelines, a copy of the AZPDES Construction General Permit, and any applicable ordinances and regulations and outreach materials for stormwater management for construction facilities.

B. Planning and Land Development

The City recognizes the need to understand Low Impact Development (LID) practices and has been tasked with developing an ordinance to develop and provide guidance of LID practices. The projection for the draft ordinance to be completed is early 2013.

C. Plan Review and Approval

1. Plan Review

Following SWPPP review and plan approval, the Planning and Development Services Department (PDSD) issues building permits and grading permits.

2. Plan Approval

Verification that the SWPPP and Notice of Intent to Discharge (NOI) are complete is a requirement for the issuance of a grading permit. SWPPPs were submitted and reviewed and ground disturbing permits were issued that met the AZPDES Construction General Permit eligibility requirements.

3. Pre-Construction Meetings

Planning and Development Services Department (PDSD) holds pre-construction meetings for private construction projects. The meeting provides an opportunity to review the City's requirements that includes the requirement to provide a copy of ADEQ's authorization document at the preconstruction meeting. Other requirements are aimed at ensuring the contractor understands the stormwater controls to be utilized for sites disturbing one or more acres.

4. Transportation Projects

The Department of Transportation administers the construction of roads and stormdrains within the publicly owned right-of-ways. The Stormwater Management Section reviews plans and ensures the SWPPPs for these projects meet all the requirements of the Arizona Construction General Permit. The City does not issue a Notice to Proceed until a copy of ADEQ's authorization document is received.

In addition to administering construction, the Department of Transportation, Permits and Codes Section issues Right-of-Way (ROW) use permits for private activities, including utility work, that take place within City owned right-of-ways and insures that ROW and Public Improvement projects meet the requirement for an AZPDES Construction General Permit. All required SWPPPs were reviewed and approved prior to the start of work.

D. Status of Inventory

1. Permits Plus Database

The City continues to utilize the Permits Plus Database to track private development activities and inspections. Information in the database includes: requirements for a Construction General Permit, plan and SWPPP review comments, number of submittals, site location, construction inspections, enforcements and other information. This database is continually updated as plans are submitted and reviewed, permits are issued, and construction sites are inspected.

2. Smart NOI Database

A search is performed annually through ADEQ's NOI Construction Stormwater General Permit Database for permits the City has filed. Expired permits or finished projects are

noted and the City's signatory is notified to file a Notice of Termination (NOT) with ADEQ.

E. Inspections

Many construction projects are small and do not come under the AZPDES requiring a SWPPP. However, a number of projects do. Inspections are prioritized by performing inspections on those that need a SWPPP as the higher priority and those that do not need a SWPPP are a lower priority. Additionally, projects that have had a lot of problems, such as track out, or are near a receiving water, are put on the highest priority.

1. Inspection Findings

During this reporting period, PDSD inspected 15 construction sites. The findings were typical of construction sites and inspectors communicated what was needed in order to comply with AZPDES construction general permit.

2. Enforcement Actions

During this reporting period, PDSD issued 375 enforcement requests for corrective actions due to site deficiencies. These included the location, installation, and maintenance of controls, and the requirement for on-going inspections. 222 enforcement actions were resolved at the time of the follow-up inspection, and the remaining are in progress.

3. Transportation Projects

During this reporting period 145 inspections of Capital Improvement Projects (CIP) and Public Improvement Agreement (PIA) projects involving road construction were performed. SWPPP deficiency(s) were reported to the on-site superintendent, field engineer, or designated representative. Verbal warnings were given to correct the discovered deficiency(s) that ranged from track-out, sediment accumulation along the roadway, stormdrain inlet protection maintenance, improperly installed BMPs, and record keeping. Follow-up inspections determined that all concerns were quickly addressed and resolved satisfactory.

VII. Post-Construction Site Controls

A. Review of Master Plan

Before March 2013, the city will evaluate the existing Master Plan to ensure the plan contains stormwater pollutant controls that are adequate and effective. The findings and recommendations of this evaluation, as well as a schedule for implementing enhancements, will be described in the FY 2012-13 Annual Report. The description will include planning procedures and post-construction practices to reduce the discharge of stormwater pollutants from newly-developed and redeveloped areas.

B. Municipal Employee Training

Municipal employee training for construction and post-construction is discussed under Section VI Construction Site Controls.

C. POST-CONSTRUCTION CONTROLS

In this report period, the City did not implement any new post-construction controls for municipal projects. The City will develop an inspection, maintenance, and tracking program for Post-Construction Controls.

1. Inspection of Privately owned Retention/Detention Basins

The Planning and Development Services Department (PDSD) has an on-going program for inspection of privately owned retention/detention basins to ensure that the basins continue to operate as designed. Every year PDSD inspects privately owned basins and performs follow up inspections if deficiencies are found.

2. Inspection of 75% of City Permitted Sites

In this report period, the City inspected all of the permitted sites. Planning and Development Services Department inspectors conducted post construction inspections of privately developed sites to ensure vegetative landscape cover was established to stabilize the site. The Stormwater Management Section conducted post-construction inspections for Capital Improvement Projects and Private Improvement Agreement projects that were completed during this report period. Permits and Codes Section performed post-construction inspections for AZPDES projects. No concerns or deficiencies were noted.

D. COMPLIANCE ACTIVITIES/ENFORCEMENT

1. Privately Owned Retention/Detention Basins Enforcement

No major enforcement actions (citations) were issued in this report period. However, 38 verbal or written requests for basin maintenance were given.

2. Summary of Follow-up Actions

Upon follow-up, all requested maintenance had been performed to keep basins functional.

PART 4: NUMERIC SUMMERY OF STORMWATER PROGRAM ACTIVITIES

I. Illicit Discharge Detection & Elimination Program

A. MUNICIPAL EMPLOYEE TRAINING

STORMWATER MANAGEMENT PRACTICE OR ACTIVITY	2011-12	2012-13	2013-14	2014-15	2015-16
Number of training sessions (on non-stormwater discharges and the IDDE program)	• 18	•	•	•	•
Number of employees attending training	• 128	•	•	•	•

B. SPILL PREVENTION

STORMWATER MANAGEMENT PRACTICE OR ACTIVITY	2011-12	2012-13	2013-14	2014-15	2015-16
Number of municipal facilities identified with hazardous materials	• 9	•	•	•	•
Number of spills at municipal facilities with hazardous materials that occurred in outside areas	• 9	•	•	•	•
Number of facility assessments completed	• 213	•	•	•	•
Date of last review of site-specific materials handling and spill response procedures	• 6/30	•	•	•	•

C. OUTFALL INSPECTION

STORMWATER MANAGEMENT PRACTICE OR ACTIVITY	2011-12	2012-13	2013-14	2014-15	2015-16
Total number of major outfalls identified to date	• 521	•	•	•	•
Total number inspected	• 113	•	•	•	•
Number of 'priority outfalls' identified to date	• 10	•	•	•	•
Number of 'priority outfalls' inspected	• 10	•	•	•	•
Number of potential dry weather flows detected	• 0	•	•	•	•
Number of potential dry weather flows investigated	• 0	•	•	•	•
Number of major outfalls sampled during dry weather flow	• 0	•	•	•	•
Number of illicit discharges identified	• 0	•	•	•	•
Number of illicit discharges eliminated	• 0	•	•	•	•

D. MS4 Inspections

Stormwater Management Practice or Activity	2011-12	2012-13	2013-14	2014-15	2015-16
Amount of Stormwater drainage system inspected (length)	• 279	•	•	•	•
Number of stormdrain cross connection investigations	• 3	•	•	•	•
Number of illicit connections detected	• 1	•	•	•	•
Number of illicit connections eliminated	• 1	•	•	•	•
Number of corrective or enforcement actions initiated within 60 days of identification	• 1	•	•	•	•
Percent of cases resolved or transferred to City Court System within 1 calendar year of original enforcement action	• 100%	•	•	•	•
Percent of cases resolved or transferred to City Court System within 1 calendar year of original enforcement action	• 100%	•	•	•	•
Illicit discharge from irrigation, misting, overflow and ponding	• 486	•	•	•	•
o Verbal warnings for above	• 275	•	•	•	•
o Written warnings for above	• 68	•	•	•	•
o Turned over to court for above	• 4	•	•	•	•

E. Inspection due to Reports of Dry Weather Flow

Stormwater Management Practice or Activity	2011-12	2012-13	2013-14	2014-15	2015-16
Number of illicit discharge reports received	• 120	•	•	•	•
Percent of illicit discharge reports responded to	• 100%	•	•	•	•
Percent of responses initiated within 3 business days	• 100%	•	•	•	•

II. Municipal Facility Stormwater Program

A. Municipal Employee Training

Stormwater Management Practice or Activity	2011-12	2012-13	2013-14	2014-15	2015-16
Number of training events	• 54	•	•	•	•
Number of staff trained	•	•	•	•	•
Number of Stormwater Staff Training Sessions/number trained	• 5/27	•	•	•	•

B. Municipal Facility Inventory

Stormwater Management Practice or Activity	2011-12	2012-13	2013-14	2014-15	2015-16
Total number of facilities on inventory	• 203	•	•	•	•
Date identification of "higher risk" facilities complete and date of prioritization of municipal facilities completed	• Nxt yr	•	•	•	•
Number of municipally-owned high risk facilities identified	• Nxt yr	•	•	•	•

C. Inspections

Stormwater Management Practice or Activity	2011-12	2012-13	2013-14	2014-15	2015-16
Miles of MS4 drainage system prioritized for inspection	• 396	•	•	•	•
Miles visually inspected	• 247	•	•	•	•
Number of "higher risk" municipal facilities inspected	• 4	•	•	•	•
Number of "higher risk" municipal facilities found needing improved stormwater controls	• 0	•	•	•	•

D. Infrastructure Maintenance

Stormwater Management Practice or Activity	2011-12	2012-13	2013-14	2014-15	2015-16
Linear miles of drainage channel cleaned (city to maintain records documenting specific street cleaning events)	• 161	•	•	•	•
Linear miles of closed conduit cleaned	• 0.05	•	•	•	•
Street sweeping (linear miles)	• 24,709	•	•	•	•
Record amount of waste collected from street and lot sweeping (reported in pounds, gallons, etc.)	• 7,027	•	•	•	•
Number of retention/detention basins cleaned	• 10	•	•	•	•
Total number of catch basins identified to date	• 1,000	•	•	•	•
Number of catch basins cleaned	• 43	•	•	•	•

III. Industrial Stormwater Program

A. Municipal Employee Training

Stormwater Management Practice or Activity	2011-12	2012-13	2013-14	2014-15	2015-16
Number of training events for MS4 staff	• 5	•	•	•	•
Number of staff trained	• 3	•	•	•	•

B. Inventory

Stormwater Management Practice or Activity	2011-12	2012-13	2013-14	2014-15	2015-16
Number of Industrial facilities inspected	• 19	•	•	•	•
Total number of facilities on the priority list	• 33	•	•	•	•

C. Inspections and Enforcement Actions

Stormwater Management Practice or Activity	2011-12	2012-13	2013-14	2014-15	2015-16
Number of corrective or enforcement actions initiated on industrial facilities	• 7	•	•	•	•
Percent of cases resolved within one (1) calendar year of original enforcement action	• 100%	•	•	•	•
Number of cases referred to the City Court System	• 0	•	•	•	•

IV. Stormwater Construction Program Activities

A. Municipal Employee Training

Stormwater Management Practice or Activity	2011-12	2012-13	2013-14	2014-15	2015-16
Number of training events for SWPPP plan review staff	• 1	•	•	•	•
Number of staff trained	• 3	•	•	•	•

B. Plan Review

Stormwater Management Practice or Activity	2011-12	2012-13	2013-14	2014-15	2015-16
Number of grading plans/SWPPPs submitted for review	• 47+	•	•	•	•
Number of ground disturbing permits issued that meet the AZPDES Construction General Permit eligibility	• 19+	•	•	•	•
Number of construction/grading plans reviewed for those that fall under AZPDES	• 24	•	•	•	•
Number of AZPDES permitted construction sites	• 24	•	•	•	•

C. Inspections and Enforcement Actions

Stormwater Management Practice or Activity	2011-12	2012-13	2013-14	2014-15	2015-16
Number of AZPDES construction sites inspected	• 24	•	•	•	•
Number of corrective or enforcement actions initiated on construction facilities	• 415	•	•	•	•
Number of corrective actions resolved	• 262	•	•	•	•
Number of corrective actions turned over to the City Court System	• 0	•	•	•	•

V. Post Construction Program Activities

Stormwater Management Practice or Activity	2011-12	2012-13	2013-14	2014-15	2015-16
Number of post-construction inspections completed	• 1,921	•	•	•	•
Number of corrective or enforcement actions initiated for post-construction activities	• 15	•	•	•	•

C. Plan Review and Approval

1. Plan Review

Following SWPPP review and plan approval, the Planning and Development Services Department (PDSD) issues building permits and grading permits.

2. Plan Approval

Verification that the SWPPP and Notice of Intent to Discharge (NOI) are complete is a requirement for the issuance of a grading permit. SWPPPs were submitted and reviewed and ground disturbing permits were issued that met the AZPDES Construction General Permit eligibility requirements.

3. Pre-Construction Meetings

Planning and Development Services Department (PDSD) holds pre-construction meetings for private construction projects. The meeting provides an opportunity to review the City's requirements that includes the requirement to provide a copy of ADEQ's authorization document at the preconstruction meeting. Other requirements are aimed at ensuring the contractor understands the stormwater controls to be utilized for sites disturbing one or more acres.

4. Transportation Projects

The Department of Transportation administers the construction of roads and stormdrains within the publicly owned right-of-ways. The Stormwater Management Section reviews plans and ensures the SWPPPs for these projects meet all the requirements of the Arizona Construction General Permit. The City does not issue a Notice to Proceed until a copy of ADEQ's authorization document is received.

In addition to administering construction, the Department of Transportation, Permits and Codes Section issues Right-of-Way (ROW) use permits for private activities, including utility work, that take place within City owned right-of-ways and insures that ROW and Public Improvement projects meet the requirement for an AZPDES Construction General Permit. All required SWPPPs were reviewed and approved prior to the start of work.

D. Status of Inventory

1. Permits Plus Database

The City continues to utilize the Permits Plus Database to track private development activities and inspections. Information in the database includes: requirements for a Construction General Permit, plan and SWPPP review comments, number of submittals, site location, construction inspections, enforcements and other information. This database is continually updated as plans are submitted and reviewed, permits are issued, and construction sites are inspected.

2. Smart NOI Database

A search is performed annually through ADEQ's NOI Construction Stormwater General Permit Database for permits the City has filed. Expired permits or finished projects are

PART 6 STORMWATER MANAGEMENT PROGRAM MODIFICATIONS

The Stormwater Management Plan has been developed and is in its first month of use. To date, only minor modifications have occurred. They include a better description of what other departments do and what area(s) it relates to in the stormwater program. The updated SWMP will be posted on the City's Internet site in October of this year.

Other changes are underway (that may change) include:

- A five year public involvement/participation plan has been established and included in the SWMP,
- "Select groups" of municipal employees to receive expanded IDDE training have been identified and included in the SWMP,
- Additional priority outfalls for IDDE Program have been identified,
- City owned and operated facilities are being assessed,
- A mechanism to identify and report AZPDES permit non-filers has been developed and included in the SWMP.

1. Addition of New Control Measures: The City has prioritized industrial facility inspections based each facility's potential for polluting the City's stormdrain system and the type of facility. For example, non-exposure facilities have the lowest priority for inspection.

2. Addition of Temporary Control Measures: The City has added a few industrial/commercial facilities that do not fall under the requirements of an MSGP to the industrial inspection program because these facilities have had spills or discharges. These facilities will be inspected annually until the inspector determines they are not longer a threat to polluting the City's MS4.

3. Increase of Existing Control Measures: If a need arises to increase existing control measures and if human resources are available, the City will increase inspection frequency.

4. Replacement of Existing Control Measures: In preparing the new Stormwater Management Plan, the City will evaluate control measures to determine if any existing measures should be replaced.

PART 7 MONITORING LOCATIONS

Stormwater is monitored at five locations within the City of Tucson along with one at Lakeside Lake for this permit term only. They are:

Site	Land Use	Physical Location	Location	Watershed Area (acres)	Receiving Water
1	Single Family Residential	Grant Road & Wilson Avenue	32° 15' 02.83" N 110° 56' 15.23" W	400	SC
2	Multi-family Residential	Greenlee Road	32° 16' 14.9" N 110° 53' 56.88" W	49	R, SC
3	Commercial	El Con Mall / Randolph Way	32° 13' 16.16" N 110° 55' 04.77" W	38	SC
4	Industrial	17th Street	32° 12' 48.33" N 110° 57' 12.33" W	91	SC
5	Mixed Use	First Avenue at Limberlost Road	32° 16' 58.28" N 110° 57' 40.35" W	380	R, SC
LS		Stella & Escalente	32° 11' 3.77" N 110° 48' 57.47" W 32° 10' 37.66" N 110° 48' 48.10" W	7,462	P

SC = Santa Cruz River, R = Rillito River, P = Pantano Wash, LS = Lakeside Lake

Lakeside Lake (Atterbury Wash) flows to Pantano Wash that flows to the Rillito River that flows to the Santa Cruz River. Sites 2 and 5 flow to the Rillito River that flows to the Santa Cruz River. The other sites flow directly into the Santa Cruz River. At the discharge points, the Santa Cruz and Rillito are both normally dry, ephemeral washes with no aquatic habitat.

Lakeside Lake is sampled manually. All five of the City's monitoring stations are equipped with automated sampling equipment. The automated equipment is programmed to collect flow-weighted samples at fixed time intervals. However, due to constant equipment malfunctions, sampling is conducted manually. Samples are composited at the laboratory based on storm hydrographs to achieve a flow-weighted composite for analysis.

PART 8 STORM EVENT RECORDS

Rainfall (RF) in inches at each site (1,2,3,4,5) along with the status of the site and sampling

	Date	1	RF	2	RF	3	RF	4	RF	5	RF
Winter Season 2011 - 2012	11/2			0.05	NF						
	11/5	0.11	NR	0.19	NF	0.15	NR	0.16	NR	0.1	NF
	11/7	0.33	SC	0.31	IN	0.26	IN	0.27	IN	0.32	IN
	11/12			0.03	NF						
	11/13			0.71	IN	0.71	IN	0.72	SC	0.67	IN
	11/14			0.01	NF	0.01	NF				
	11/21			0.04	NF						
	11/24			0.09	NF	0.03	NF			0.08	NF
	11/25			0.06	NF	0.06	NR			0.09	NR
	12/1			0.15	NF	0.13	IN			0.14	IN
	12/2			0.07	NF	0.08	NR			0.06	NF
	12/3			0.18	NF	0.2	72			0.18	72
	12/4			0.01	NF	0.01	NF			0.01	72
	12/6			0.01	NF						
	12/12			0.22	NF	0.18	SC			0.19	IN
	12/13			1.21	72					1.08	72
	12/15			0.01	NF						
	12/18			0.38	IN					0.28	IN
	12/19			0.08	NR					0.05	72
	1/15			0.23	NF					0.21	IN
	1/16			0.05	NF					0.13	IN
	2/14			0.12	NF					0.11	SC
	3/18			0.43	SC						

11/24 Holiday, 11/25 Furlough, 12/1-3 & 12/18 not on call

Key

NR	Not Representative (storm event of less than 0.1 inches)	DC	Dangerous Conditions
SC	Sample Collected	72	Station closed for 72 hours
IS	Insufficient Sample (for analysis)	IN	Insufficient Staff
NF	No Flow	EF	Equipment Failure

PART 9 SUMMARY OF MONITORING DATA (BY LOCATION)

I. Five Sample Sites

Winter 2011-2012		Site 1	Site 2	Site 3	Site 4	Site 5
	Sampling Date(s):	11/07/2011	03/18/2012	12/12/2011	11/13/2011	02/14/2012
Monitoring Parameters	**SWQS**					
Conventional Parameters						
Flow	n/a	2.01	0.1	1.59	3.82	1.07
pH	6.5 - 9	7.07	7.97	6.74	7.95	7.75
Temperature	n/a	12	9.3	12.4	15.6	11.5
Hardness	<400	60	30	23	60	100
TDS (mg/L)	n/a	120	160	33	98	300
TSS (mg/L)	n/a	180	15	86	170	170
BOD (mg/L)	n/a	25	37	20	10	100
COD (mg/L)	n/a	230	160	140	96	470
Inorganics						
Cyanide, total (ug/L)	n/a	<100	<100	<100	<100	<100
Nutrients (mg/L)						
Nitrate + Nitrite as N	n/a	<0.0015	<0.1	<0.0015	<0.0015	2
Ammonia as N	n/a	0.63	0.87	<1.0	<0.068	3.7
Total Kjeldahl Nitrogen (TKN)	n/a	3.4	2.5	0.58	1.5	8.8
Total Phosphorus	n/a	0.43	0.32	0.19	0.33	0.69
Total Orthophosphate	n/a	<0.045	<0.50	<0.045	<0.045	0.5
Microbiological						
Escherichia coli (E. coli) (CFU/100 mg or MPN)	575	2400	87	770	2400	93
Total Metals (ug/L)						
Antimony	747	3.1	<0.50	3.3	1.2	<0.2
Arsenic	200	<4.8	<40	<4.8	<4.8	<40
Barium	98,000	130	<50	60	72	130
Beryllium	1,867	<0.19	<2.0	<0.19	<0.19	<2.0
Cadmium	500[Note]	<0.31	<2.0	<0.31	<0.31	<2.0
Chromium	1,000	<0.61	<30	<0.61	<0.61	<30
Copper	500 [Note]	87	<20	61	52	99
Lead	15[Note]	21	0.96	19	16	<0.04
Mercury	10T-5D	<0.014	<1.0	<0.014	<0.014	<1.0
Nickel	28000 [Note]	<1.1	<50	<1.1	<1.1	<50
Selenium	33	<0.062	<2.5	<0.062	<0.062	<0.04
Silver	4667 [Note]	<0.46	<10	<0.46	<0.46	<10
Thallium	75	<0.0036	<0.50	<0.0036	<0.0036	<0.05
Zinc	25,000 [Note]	230	56	240	190	720

Winter 2011-2012		Site 1	Site 2	Site 3	Site 4	Site 5
	SWQS	11/07/2011	03/18/2012	12/12/2011	11/13/2011	02/14/2012
Organic Toxic Pollutants (mg/L)						
Total Petroleum Hydrocarbons	n/a	<5.00	<5.00	8	<5.00	8.9
Total Oil and Grease	n/a	6.4	<5.00	7.4	<0.570	10.6
VOCs, Semi-VOCs, and Pesticides (ug/L)						
Acrolein	467	<10	<10	<0	<10	<50
Acrylonitrile	37,333	<10	<10	<0.92	<0.92	<50
Benzene	3,733	<2.0	<2.0	<0.25	<0.25	<10
Bromoform	18,667	<2.0	<2.0	<0.33	<0.33	<10
Carbon tetrachloride	1,307	<2.0	<2.0	<0.18	<0.18	<10
Chlorobenzene	18,667	<2.0	<2.0	<0.24	<0.24	<10
Chlorodibromomethane	n/a	<2.0	<2.0	<0.20	<0.21	<10
Chloroethane	n/a	<5.0	<5.0	<0.17	<0.17	<25
2-chloroethylvinyl ether	n/a	<2.0	<2.0	<0.31	<0.31	<50
Chloroform	9,333	<2.0	<2.0	<0.19	<0.19	<10
Dichlorobromomethane	n/a	<2.0	<2.0	<0.21	<0.20	<10
1,2-dichlorobenzene	590	<2.0	<2.0	<0.48	<0.48	<10
1,3-dichlorobenzene	n/a	<2.0	<2.0	<0.35	<0.35	<10
1,4-dichlorobenzene	6,500	<2.0	<2.0	<0.41	<0.41	<10
1,1-dichloroethane	n/a	<2.0	<2.0	<0.17	<0.17	<10
1,2-dichloroethane	186,667	<2.0	<2.0	<0.21	<0.21	<10
1,1-dichloroethylene	46,667	<2.0	<2.0	<0.28	<0.28	<10
1,2,-dichloropropane	84,000	<2.0	<2.0	<0.0	<2.0	<10
1,3,-dichloropropylene	n/a	<2.0	<2.0	<0.30	<0.17	<10
Ethylbenzene	93,333	<2.0	<2.0	<0.24	<0.24	<10
Methyl bromide (Bromomethane)	n/a	<2.0	<2.0	<0.21	<0.21	<10
Methyl chloride (Chloromethane)	n/a	<5.0	<5.0	<0.28	<0.28	<25
Methylene chloride	n/a	<10	<10	<0.28	<0.28	<50
1,1,2,2-tetrachloroethane	93,333	<2.0	<2.0	<0.50	<0.50	<10
Tetrachloroethylene	9,333	<2.0	<2.0	<0.29	<0.29	<10
Toluene	373,333	<2.0	<2.0	<0.22	<0.22	<10
1,2-trans-dichloroethylene	n/a	<2.0	<2.0	<0.23	<0.23	<10
1,1,1-trichloroethane	186,666,667	<2.0	<2.0	<0.23	<0.23	<10
1,1,2-trichloroethane	3,733	<2.0	<2.0	<0.32	<0.32	<10
Trichloroethylene	280	<2.0	<2.0	<0.19	<0.19	<10
Trimethylbenzene	n/a					
Vinyl chloride (chloroethylene)	2,800	<2.0	<2.0	<0.32	<0.32	<10
Xylene	186,667	<6.0	<6.0	<0.63	<0.63	<30

Winter 2011-2012		Site 1	Site 2	Site 3	Site 4	Site 5
	Sampling Date(s):	11/07/2011	03/18/2012	12/12/2011	11/13/2011	02/14/2012
SVOCs - Acid Extractables (ug/L)						
2-chlorophenol	4,667	<9.8	<9.8	<9.2	<9.2	<9.9
2,4-dichlorophenol	2,800	<9.8	<9.8	<7.9	<7.9	<9.9
2,4-dimethylphenol	18,667	<9.8	<9.8	<2.4	<2.4	<9.9
4,6-dinitro-o-cresol (4,6-Dinitro-2methylphenol)	3,733	<20	<20	<12	<12	<9.9
2,4-dinitrophenol	1,867	<49	<49	<14	<14	<49
2-nitrophenol	n/a	<9.8	<9.8	<7.3	<7.3	<9.9
4-nitrophenol	n/a	<49	<49	<5.1	<5.1	<49
p-chloro-m-cresol (4-Chlor-3-methylphenol)	n/a	<9.8	<9.8	<4.1	<4.1	<9.9
Pentachlorophenol	28,000	<29	<29	<9.2	<9.2	<30
Phenol	180,000	<9.8	<9.8	<19	<19	<9.9
2,4,6-trichlorophenol	130	<9.8	<9.8	<8.4	<8.4	<9.9

Winter 2011-2012		Site 1	Site 2	Site 3	Site 4	Site 5
	Sampling Date(s):	11/07/2011	03/18/2012	12/12/2011	11/13/2011	02/14/2012
SVOCs - Bases/Neutrals (ug/L)						
Acenaphthene	56,000	<4.9	<4.9	<5.1	<5.1	<4.9
Acenaphthylene	n/a	<4.9	<4.9	<5.0	<5.0	<4.9
Anthracene	280,000	<4.9	<4.9	<5.3	<5.3	<4.9
Benzo(a)anthracene	0.2	<0.63	<0.63	<6.3	<6.3	<0.64
Benzo(a)pyrene	0.2	<0.51	<0.51	<5.0	<5.0	<4.9
Benzo(b)fluoranthene	n/a	<9.8	<9.8	<13	<13	<1.3
Benzo(g,h,i)perylene	n/a	<4.9	<4.9	<7.4	<7.4	<4.9
Benzo(k)fluoranthene	1.9	<1.3	<1.3	<13	<13	<1.3
Chrysene	19	<4.9	<4.9	<2.5	<2.5	<4.9
Dibenzo(a,h)anthracene	1.9	0.48	0.48	<3.7	<3.7	<0.37
3,3'-dichlorobenzidine	3	<1.1	<1.1	<11	<11	<1.1
Diethyl phthalate	746,667	<9.8	<9.8	<2.3	<2.3	<9.9
Dimethyl phthalate	746,667	<9.8	<9.8	<3.2	<3.2	<9.9
Di-n-butyl phthalate	n/a	<9.8	<9.8	<18	<18	<9.9
2,4-dinitrotoluene	1,867	<9.8	<9.8	<2.1	<2.1	<9.9
2,6-dinitrotoluene	3,733	<9.8	<9.8	<1.8	<1.8	<9.9
Di-n-octyl phthalate	373,333	<9.8	<9.8	<4.5	<4.5	<9.9
1,2-diphenylhydrazine (as azobenzene)	1.8	<9.8	<9.8	<9.7	<97	<9.9
Fluroranthene	37,333	<4.9	<4.9	<5.9	<5.9	<4.9
Fluorene	37,333	<4.9	<4.9	<5.8	<5.8	<4.9
Hexachlorobenzene	747	<9.8	<9.8	<7.6	<7.6	<9.9
Hexachlorobutadiene	187	<9.8	<9.8	<2.1	<2.1	<9.9
Hexachlorocyclopentadiene	11,200	<9.8	<9.8	<9.7	<9.7	<9.9
Hexachloroethane	850	<9.8	<9.8	<2.2	<2.2	<9.9
Indeno(1,2,3-cd)pyrene	1.9	0.91	0.91	<6.9	<6.9	<0.7
Isophorone	186,667	<9.8	<9.8	<1.8	<1.8	<9.9
Naphthalene	18,667	<4.9	<4.9	<5.6	<5.6	<4.9
Nitrobenzene	467	<9.8	<9.8	<3.0	<3.0	<9.9
N-nitrosodimethylamine	0.03	<0.18	<0.18	<1.7	<1.7	<0.18
N-nitrosodi-n-propylamine	88,667	<9.8	<9.8	<2.4	<2.4	<9.9
N-nitrosodiphenylamine	n/a	<9.8	<9.8	<7.2	<7.2	<9.9
Phenanthrene	n/a	<4.9	<4.9	<4.8	<4.8	<4.9
Pyrene	28,000	<4.9	<4.9	<5.8	<5.8	<4.9
1,2,4-trichlorobenzene	9,333	<9.8	<9.8	<1.7	<1.7	<9.9

Winter 2011-2012		Site 1	Site 2	Site 3	Site 4	Site 5
	SWQS	11/07/2011	03/18/2012	12/12/2011	11/13/2011	02/14/2012
Pesticides (ug/L)						
Aldrin	5	<0.097	<0.097	<0.0098	<0.0098	<0.099
Alpha-BHC	n/a	<0.097	<0.097	<0.020	<0.020	<0.099
Beta-BHC	n/a	<0.097	<0.097	<0.020	<0.020	<0.099
Gamma-BHC	n/a	<0.097	<0.097	<0.0098	<0.0098	<0.099
Delta-BHC	n/a	<0.097	<0.097	<0.020	<0.020	<0.099
Chlordane (alpha, gamma)	3.2	<0.097	<0.097	<0.0076	<0.0076	<0.099
4,4,'-DDT	n/a	<0.097	<0.097	<0.0029	<0.0029	<0.099
4,4,'-DDE	n/a	<0.097	<0.097	<0.0069	<0.0068	<0.099
4,4,'-DDD	n/a	<0.097	<0.097	<0.0098	<0.0097	<0.099
Dieldrin	4	<0.097	<0.097	<0.0049	<0.0049	<0.099
Alpha-endosulfan (Endosulfan I)	n/a	<0.097	<0.097	<0.0098	<0.0098	<0.099
Beta-endosulfan (Endosulfan II)	n/a	<0.097	<0.097	<0.029	<0.029	<0.099
Endosulfan sulfate	3	<0.097	<0.097	<0.088	<0.088	<0.099
Endrin	0.004	<0.097	<0.097	<0.0059	<0.0059	<0.099
Endrin aldehyde	0.7	<0.097	<0.097	<0.0049	<0.0049	<0.099
Heptachlor	0.9	<0.097	<0.097	<0.020	<0.020	<0.099
Heptachlor epoxide	0.9	<0.097	<0.097	<0.020	<0.020	<0.099
PCB-1016 (Aroclor 1016)	n/a	<0.09	<0.09	<0.089	<0.090	<0.99
PCB-1221 (Aroclor 1221)	n/a	<0.09	<0.09	<0.97	<0.98	<0.99
PCB-1242 (Aroclor 1242)	n/a	<0.09	<0.09	<0.97	<0.98	<0.99
PCB-1232 (Aroclor 1232)	n/a	<0.09	<0.09	<0.97	<0.98	<0.99
PCB-1248 (Aroclor 1248)	n/a	<0.09	<0.09	<0.97	<0.98	<0.99
PCB-1254 (Aroclor 1254)	n/a	<0.09	<0.09	<0.97	<0.98	<0.99
PCB-1260 (Aroclor 1260)	n/a	<0.09	<0.09	<0.060	<0.060	<0.99
Toxaphene	0.005	<0.97	<0.99	<0.98	<0.98	<0.99

Note; Hardness expressed as mg/L $CaCO_3$ may not exceed 400 mg/L $CaCO_3$

II. Lakeside Lake

Lakeside Lake (Atterbury Wash)		Runoff	Runoff	Runoff
Receiving Water: Lakeside Lake		47	8	8
	Sampling Date(s):	07/28/2012*[1]	08/05/2012	08/05/2012
Nutrients (mg/L)	TMDL	(mg/L)	(mg/L)	(mg/L)
Nitrate + Nitrite as N		0.00	0.00	1.00
Ammonia as N		0.00	0.65	0.52
Total Kjeldahl Nitorgen (TKN)		13	3.9	2.10
Total Phosphorus		5.2	0.3	0.75
Total Orthophosphate	0.139	0.00	0.00	0.00

Runoff (Acre-Feet)

*[1] Laboratory allowed sample to expire. Re-sampled 8/5/2012

TMDL (lbs/day)

PART 10 ASSESSMENT OF MONITORING DATA

I. Stormwater Quality

This report is the first of a five year permit. The sampling results are similar to those submitted in last permitting term. Sampled stormwater exhibited typical constituent concentrations for stormwater runoff from an arid or semi-arid southwestern city. This fiscal year's samples were well within the historical range of sampling data collected in earlier permit reporting periods.

This is the first year of sampling under this permit so there are not any previous years to compare year to year chemical concentrations.

II. Water Quality Standards (WQS)

The surface water quality standards are listed in the tables found in Part 9. All sites were well below the surface water quality standards excluding those listed in Part 10. C. Site 5 that is located at 1st avenue and Limberlost drive is mixed-use and more impervious. Most of the conventional parameters and the nutrients are higher than the other sites in addition to the petroleum hydrocarbons and oil and grease. Site 1, residential site at Wilson Avenue and Grant Road, some of the metals are a little higher than the other sites. Lakeside Lake values for orthophosphate were below the PQL of (0.50 mg/L) and were therefore below the pollutant load of 0.139 lb/day.

III. Exceeding Water Quality Standards (WQS)

Sites 1, 3, and 4 exceeded the surface water quality standard for lead. Similarly, Sites 1, 3, and 4 exceeded the surface water quality standard for *E-coli* (see table below). None of the VOC's, sVOC's or pesticides were above the surface water quality standard. However, trimethlybenzene was not analyzed; it will be done next time VOCs are analyzed.

Site	1	3	4	SWQS	Suspected Cause
Sample Date	11/7/2011	12/12/2011	11/13/2011		
E. coli	2400	770	2400	575	Bird/canine droppings
Lead (ug/L)	21	19	16	15	Leaded gasoline in soils
Receiving Water	Rillito	Santa Cruz	Santa Cruz		

PART 11 ESTIMATES OF ANNUAL POLLUTANT LOADINGS

To estimate the annual pollutant load, rainfall totals are collected at each of the five stations, tabulated monthly, and used to calculate the event mean concentration for constituents monitored under the City's MS4 permit, along with the pollutant loading calculations.

Laboratories report constituent values that were not detected are reported as less then the minimum Practical Quantitation Limit (<PQL). These values are reported as zero for calculating purposes.

Runoff volumes were calculated for each drainage area, utilizing the area and impervious fraction developed by Pima County Flood Control District specifically for the Tucson metropolitan area, along with rainfall data collected at each sample site. Runoff volumes are shown in Table 11.3.

Annual pollutant load estimates were developed in accordance with guidance found in the EPA's "Guidance Manual for the Preparation of Part 2 of the NPDES Permit Applications for Discharges from Municipal Separate Storm Sewer Systems." The simple method described in this document was followed. This method involves using the event mean concentrations and multiplying by the runoff volumes for each watershed. The following formula was used to determine the annual load of each pollutant for each drainage basin:

$$L = (R)(C)(A)(N)$$
$$V = (R)(A)$$

L = Pollutant load (tons/year).
R = Runoff (inches)
C = Pollutant concentration (mg/L)
A = Area (acres)
N = Conversion (1.65×10^{-3})
V = Volume of runoff (acre-feet).

$$R = (P)(P_j)(R_v)$$

P = Rainfall (inches)
P_j = Fraction of annual rainfall events that produce runoff
R_v = Runoff coefficient
I_a = Impervious fraction

$$R_v = 0.05 + 0.9(I_a)$$

P is obtained from raw data collected from sample sites where P_j is calculated from actual rain events at sample sites that produce flow.

Table 11.1
Annual Average Concentrations for the City of Tucson's Monitoring Program 2011 – 2016
Average Annual Load and Overall Standard Deviation

mg/L	TDS	TSS	BOD	COD	N	TKN	PO_4
2012	83	112	22	136	0.6	3.6	0.3
2013							
2014							
2015							
2016							
S.D.	37	50	10	61	0.3	1.6	0.1

ug/L	Sb	As	Ba	Be	Cd	Cr	Cu	Pb	Hg	Ni	Se	Ag	Tl	Zn
2012	1.3	1.3	85	0.0	0.1	1.9	48	9.7	0.0	2.2	0.0	0.2	0.0	238
2013														
2014														
2015														
2016														
S.D.	1	1	38	0	0	1	22	4	0	1	0	0	0	107

Table 11.2
Annual Runoff Volumes

Drainage Basin	Area (sq mi) "A"	Impervious Fraction "I"	Rv no units	Total Runoff (Acre-Ft)
SANTA CRUZ RIVER	142.96	8.72	8.95	6,187
RILLITO CREEK	19.73	0.22	4.28	1,460
PANTANO WASH	29.06	0.08	2.44	757
TANQUE VERDE CREEK	10.91	0.16	1.74	532
SABINO CREEK	0.6	0.43	0.26	25
Atterbury Wash (into Lakeside Lake)	11.66	0.06	0.10	47

Table 11.3
Drainage Basin Sizes, Impervious Fraction, and Rv

Drainage Basin	Area (sq mi) "A"	Impervious Fraction "I"	Rv no units
SANTA CRUZ RIVER	142.96	8.72	8.95
Silvercroft Wash (DL)	13.44	0.12	0.16
West Branch Santa Cruz River (CG)	10.22	0.08	0.12
Hughes Wash (AC)	8.33	0.42	0.43
El Vado Wash (AG)	2.29	0.36	0.37
Santa Clara Wash (AH)	0.39	0.26	0.28
Valencia Wash (AL)	1.64	0.42	0.43
Airport Wash (AW)	24.17	0.09	0.13
Wyoming Wash (BC)	0.7	0.25	0.28
Irvington Wash (BL)	0.25	0.25	0.28
Rodeo Wash (BR)	8.39	0.21	0.24
Tucson Diversion Channel (BW)	43.53	0.20	0.23
Mission View Wash (CC)	1.62	0.48	0.48
18th Street Wash (CL)	3.59	0.42	0.43
Cushing Street Wash (CR)	0.5	0.57	0.56
Downtown Wash (CT)	0.31	0.85	0.82
Arroyo Chico (CW)	11.17	0.52	0.52
West University Wash (DA)	0.76	0.63	0.62
Bronx Wash (DC)	1.26	0.50	0.50
Grant Road Wash (DD)	0.77	0.69	0.67
Kruerger Wash (DF)	0.38	0.46	0.46
Flowing Wells Wash (DG)	6.47	0.42	0.43
Ruthrauff Wash (EG)	2.78	0.52	0.52
RILLITO CREEK	19.73	0.22	4.28
Stone Avenue Wash (HG)	0.6	0.61	0.60
First Avenue Wash (GR)	0.5	0.37	0.38
North Mountain Avenue Wash (GQ)	0.62	0.25	0.28
Tucson General Wash (GM)	0.42	0.34	0.36
Christmas Wash (GL)	3.28	0.45	0.46
Alvernon Wash (GG)	3.24	0.54	0.54
Christopher City Wash (GF)	0.21	0.49	0.49
Alamo Wash (GC)	9.81	0.46	0.46
Swan Road Wash (GD)	0.52	0.42	0.43
Creekside Wash (GE)	0.53	0.27	0.29

Table 11.3 continued
Drainage Basin Sizes, Impervious Fraction, and Rv

Drainage Basin	Area (sq mi) "A"	Impervious Fraction "I"	Rv no units
PANTANO WASH	29.06	0.08	2.44
Rose Hill Wash (UL)	2.11	0.49	0.49
Guillermo Wash (UZ)	0.75	0.42	0.43
Atterbury Wash (UG)	16.71	0.06	0.10
Mesquite Ranch Wash (UN)	1.15	0.05	0.10
Civano Wash (UR)	3.07	0.05	0.10
Owens Park Wash (UJ)	0.75	0.35	0.37
Rolling Hills Wash (UC)	1.17	0.39	0.40
Eastview Wash (TW)	0.75	0.17	0.20
Spanish Trail Wash (TR)	1.46	0.10	0.14
Escalante Wash (TL)	1.14	0.08	0.12
TANQUE VERDE CREEK	10.91	0.16	1.74
Udall Park Wash (MD)	1.03	0.35	0.37
Robb Wash (MW)	3.51	0.31	0.33
Este Wash (MG)	2.49	0.30	0.32
Wrightstown Wash (ML)	0.67	0.19	0.22
Reyes Wash (MC)	1.18	0.17	0.20
Hidden Hills Wash (MR)	2.03	0.28	0.30
SABINO CREEK	0.6	0.43	0.26
Fahringer Wash (MN)	0.6	0.23	0.26

Table 11.4
Annual Pollutant Loading for the City of Tucson's Monitoring Program
Annual Pollutant Load (tons/rainy season)

	Winter 2011-12	Summer 2012	Winter 2012-13	Summer 2013	Winter 2013-14	Summer 2014	Winter 2014-15	Summer 2015	Winter 2015-16	Summer 2016
Total Runoff(Acre-Ft)	8,961									
TDS	2,106									
TSS	1,839									
BOD	569									
COD	3,246									
N	15									
TKN	50									
PO_4	6									
Sb	0									
As	0									
Ba	1.2									
Be	0									
Cd	0									
Cr	0									
Cu	0.9									
Pb	0.2									
Hg	0									
Ni	0									
Se	0									
Ag	0									
Tl	0									
Zn	4.3									

Lakeside Lake (Atterbury Wash)		Runoff		Runoff		Runoff		
Receiving Water: Lakeside Lake		47		8		8		
Sampling Date(s):		07/28/2012*[1]		08/05/2012		08/05/2012		Average*[2]
Nutrients (mg/L)	TMDL	(mg/L)	PL	(mg/L)	PL	(mg/L)	PL	PL
Nitrate + Nitrite as N		0.00	0.000	0.00	0.000	1.00	0.021	0.011
Ammonia as N		0.00	0.000	0.65	0.014	0.52	0.011	0.012
Total Kjeldahl Nitorgen (TKN)		13	1.596	3.9	0.083	2.10	0.045	0.064
Total Phosphorus		5.2	0.638	0.3	0.007	0.75	0.016	0.012
Total Orthophosphate	0.139	0.00	0.000	0.00	0.000	0.00	0.000	0.000

Runoff (Acre-Feet)

*[1] Laboratory allowed sample to expire. Re-sampled 8/5/2012

*[2] Average does not include the expired sample

TMDL (lbs/day)

PL = Pollutant Load (pounds per day)

PART 12 ANNUAL EXPENDITURES

Expenditures for the many components of the City's Stormwater Program are funded by City Departments, and through City membership, sponsorship and contributions to agencies such as Tucson Clean and Beautiful and Pima Association of Governments. The majority of funds expended on programs benefiting stormwater quality come from the City's General Fund. Two City Departments are enterprise funded and many of their costs are not reflected in the table below. It is recognized that a number of costs associated with stormwater protection are not readily available and staff are working toward identifying and developing a tracking mechanism to estimate the costs. In future reports, the costs incurred will not be reflected in a table as seen below. For example, training costs will be separated rather then imbedded in other program costs.

An estimate of annual expenditures for programs with direct stormwater quality benefit is provided in the Table 12.1 below:

Table 12.1

	STORMWATER MANAGEMENT PRACTICE OR ACTIVITY	2011-12	2012-13	2013-14	2014-15	2015-16
I	Public Awareness	$4,794,132*				
II	Public Involvement	$870,366				
III	IDDE	$375,875				
IV	Municipal Facility Stormwater	$1,065,122				
V	Industrial Stormwater	$27,943				
VI	Construction Stormwater	$270,573				
VII	Post-Construction Stormwater	VI above				
VIII	Stormwater Sampling	$24,719				
	Program Administration & Management	$95,024				
	Total Stormwater Expenditures	$7,523,754				

*$4,700,000 was from Tucson Water alone

PART 13 ATTACHMENTS

- Laboratory reports (attached)
- Standard Operating Procedures for Field Analysis (attached)
- Pima Association of Governments Outreach Activities (attached)
- Drainage System Maps will be included in or by 4th year annual report
- List of major outfalls will be included in or by 4th year annual report
- List of changes to the major outfall inventory included in or by 4th year annual report
- New or revised ordinances -None
- New or revised public outreach documents